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### A CLINICAL LECTURE DELIVERED AT THE PHILADELPHIA HOSPITAL.

THESE specimens, which I am able to show you, with the cases recently under my observation, will form the basis of a few remarks which, I trust, will be of some value.

I have here a large intestine, including the rectum, of a case of so-called dysentery. You will see the intense injection of the mucous membrane, portions of which are covered with pus and mucus, and here and there with blood-stained mucus, or particles of blood. The folds of the mucous membrane are the seat of abrasion and superficial ulceration, limited only to the uppermost layers of the membrane. When these ulcers are cleaned they are seen to be grayish in color. They vary in shape, but usually take the direction of the folds of the mucous membrane. The solitary glands are enlarged, and here and there we see small, round ulcers, with grayish floors. The mucus-like material covering the ulcers is really a croupous exudation, and this form of inflammation is known as "croupous inflammation." In this other specimen the mucosa is deep red, swollen and infiltrated. Mucus and dark grumous or bloody material cover the membrane. Instead of small ulcers, we see here deeper ulcers, with darkened floors and irregular, often overhanging, edges. The ulcers are large, and in some places have extended to the muscular coat of the bowel. The solitary glands are enlarged, and nearly all of them are the seat of ulceration, and most of the ulcers are deeper than in the other specimens, while the exudation covering them is darker. The threads of membrane or of tissue, easily removed from the edges of the ulcers, emit an odor distinctly indicating necrotic process. In this instance the ulcerations are scattered throughout the large bowel, and are most extensive in the cæcum. On the one hand the swollen, dark-colored, heavy mucous lining contrasts strongly with the injected, superficially-ulcerated membrane. Both are examples of the same pathological process, differing only in degree.

The microscopical examination and bacteriological study of the exudation is of interest. We learn that the contents of the bowel, or the covering of the mucous membranes, is composed of pus and blood, and that when a high objective is used bacteria are seen in abundance, and, as has been demonstrated recently, large amœbæ. Well-teased specimens from the more intense inflammations, in addition to the presence of pus, blood and the characteristic bacteria and amœbæ, exhibit shreds of tissue and the structural remains of the mucous membrane. Now, the presence of blood and of pus is not of much





significance. They simply indicate the occurrence of intense inflammation in the large bowel. The presence of the bacteria and the amœbæ are, however, of specific interest. While bacteria of all forms are common to inflammations of the intestinal tract, the varieties found in dysentery are pathogenetic, and when the usual bacteriological methods are employed, they indicate the presence of a specific micro-organism—a micro-organism, moreover, which is not present in any other form of inflammation. While, however, the abundance and variety of the ordinary bacteria render their differentiation difficult and conclusions as to their specificity not positive, such is not the case with reference to these amœbæ, whose association with, and causal relation to, dysentery have been carefully studied by Hlava and Kartulis, who were the first to discover them, by Koch and other observers.

In tropical dysentery these low grades of animal life are peculiar. It has happened that a series of cases of dysentery, some without complications, others with liver abscess, have been under observation in Johns Hopkins Hospital, and Prof. Osler, and also Dr. Lafleur, have been able to find the characteristic amœbæ in the discharges, as well as in the pus from the hepatic abscess. Their observations have been published in the Johns Hopkins Hospital Reports, and the amœbæ are thus described :

"There are found in the stools numerous actively moving amœboid bodies, varying considerably in size, the average being 5-7 times the size of a leucocyte. The bodies were of a very pale bluish-green color, and contained from one to many small vacuoles surrounded by fine and often highly-refracting, granular particles, the whole being invested by a homogeneous outer zone, looking like finely-ground glass.

"The movements were rapid and flowing in character, the initiative being always taken by the homogeneous outer layer, which was at first slowly projected from some part of the surface as a hemispherical knob, and into which the granular centre of the body then flowed with a sudden, rapid motion. When at rest the bodies usually assumed a circular or oval outline. In some it was impossible to make out a circular nucleus. The number of amœbæ varied greatly with the different specimens examined."

I have stated that in no other forms of inflammation has this peculiar body been found. It is not positive, as yet, however, what relation etiologically it bears to the disease. The fact of its occurrence only in dysentery is significant, and it is striking to find its presence in abscesses apart from, but secondary to, the original seat of inflammation. It is clear, until further researches are made, that only a diagnostic value can be attached to the presence of the amœbæ in the intestines, or in pus derived from the liver. Of this value for diagnostic purposes we will take occasion to again speak.

From the morbid anatomy of croupous inflammation, or, if you please, bacterial inflammation, of the large bowel in man, just demonstrated to you, one can readily infer the symptoms of this affection. From the presence of the inflammation in this locality, of course, local manifestations, due to irritation of the mucous membrane and muscular coat of the bowel and the nerves of these structures, would be inferred. From the presence of the bacteria, or the evidences of microbic inflammation, one would be lead on to the further inference of general symptoms allied to the phenomena of all blood infection. Of the local symptoms,



the occurrence of increased frequency of the movements of the bowel, at first with ordinary fecal discharges, and then with discharges of blood and pus and mucus; the occurrence, with this increased action, of pain, on account of the constant presence of irritation or inflammation; the occurrence of tormina and tenesmus is to be expected, and is most characteristic of the affection. The general symptoms of blood infection vary with the intensity of the process. In the milder forms, where the inflammation is not great, and the growth of microbes not profuse, general infection occurs in a minimum form, and in some cases no general symptoms arise. The more marked the severity and intensity of the local process, the richer the growth of micro-organisms, the more likelihood of blood infection and the possible outbreak of grave septic symptoms. Hence rigors and fever, with headache, backache and general malaise, are common. As infection becomes greater, the nervous system becomes affected, excretions are retained, and that low type of disease associated with profound disorganization of the blood arises—the typhoid state. Typhoid dysentery is a representative, therefore, of a malignant form of this affection. It is not very difficult to trace these local and general symptoms to the morbid appearance of the disease, or clinically to recognize the occurrence of dysentery. The local symptoms are paramount in the milder forms. In the graver forms, when the susceptibilities or sensibilities of the patient are blunted by the typhoid state, or, possibly, the terminal endings of the nerve are destroyed by the ulcerative or infiltrating process, the local symptoms are less marked and the general manifestations more striking.

We have here a patient who, for two days prior to admission, has had a diarrhoea with slight pain and moderately sized but insignificant fecal discharges, semi-fluid in character. To-day the discharges increased in frequency, and have been attended not only with the colicky pain of two or three days ago, but with severe local burning pain in the rectum, followed by extreme tormina and tenesmus. As soon as the patient has an evacuation there is straining and a further attempt at a discharge without result. The discharges now are small in amount, of a bloody and mucous character, and little feces is visible. To-day there is slight fever, the temperature rising  $100\frac{1}{2}^{\circ}$ ; but there has been no reaction whatever, and no general symptoms save exhaustion, on account of the frequent discharges and the severe pain. As we have anticipated, the inflammation is local, and as yet, at least, there is no infection of the system. The patient, a healthy young adult, can well bear such a drain, and with proper treatment will soon recover.

Not so, however, with the second patient, a woman 60 years of age, who one week ago was seized with severe diarrhoea. The discharges were watery, fecal and attended with a considerable amount of colicky pain. There was no fever present at this time, and, save a moderate amount of prostration, no general symptoms. On the third day the patient had a slight chill, followed by a rise in temperature and with it increase in local pain. With it there was almost constant desire to have movements of the bowels, and the repeated efforts at evacuation resulted only in the discharge of small amounts of mucus



and blood, attended with severe tenesmus and tormina. Each day the fever has increased in intensity, so that to-day, the sixth day of her illness, the temperature has risen to  $103^{\circ}$ . Each day the general symptoms become more marked. With the high temperature which is present the typhoid state has now developed. There is delirium at night, the tongue is dry and brown, and is protruded with difficulty on account of its tremulousness. With the night delirium there is some subsultus. The skin is hot and dry. There is no appetite, and occasionally there is slight nausea. Some change has taken place in the local symptoms in the last twenty-four hours. There is less pain now; only occasionally is there tormina or tenesmus. There is, however, more or less constant discharge, not of mucus, but of the dark fluid, of a most sickening odor, containing apparently dark coagula of blood. There is almost entire loss of the retaining power of the bowel. The absence of pain and the gangrenous odor of the stools are indicative of the deep-seated gangrenous inflammation of a severe type of dysentery. In addition to the typhoid state there has developed within the last twenty-four hours a swelling in the parotid region, and here you see readily outlined the large gland, the seat of septic inflammation. The surface is tense over it, and the spot is tender to the touch. If exhaustion does not ensue too soon, suppuration will in all probability take place in this gland.

In these two cases you have types of dysentery as seen in this climate. In southern climates malignant forms of dysentery are more common. In this climate it is more usual to see forms like the first just indicated. In southern climates bilious symptoms, so called, or, at least, gastro-duodenal disturbance are most common, and "bilious" dysentery is seen very frequently. The attack begins or is attended by the vomiting of the contents of the stomach and of bile. A slight jaundice sometimes attends it, and the discharges are combined with considerable amounts of bile.

The recognition of dysentery is not usually difficult, yet there are sometimes circumstances which render it so. Its occurrence in early life is quite common, and it may be confounded with the rare but very grave affection, intussusception of the bowel. If due attention can be paid, however, to the evolution of the symptoms in the latter affection, or, rather, I should say, if the onset is not too sudden and the tenesmus arise too early, the lesion may be readily apparent. The little child in both instances suddenly may be seized with pain and with increased movements of the bowel. In dysentery, fever begins at once; in intussusception, it does not arise until later in the affection. In dysentery the bloody, and mucous discharges are mixed with discharges of feces, usually having the characteristic appearance of cooked spinach, or there are little fecal masses intermingled with blood and mucus. In intussusception, if the bowel has been emptied of feces there is no discharge except of blood or of mucus. With the immediate onset of the disease in intussusception there is usually the discharge of a small amount of blood, but the discharge of mucus does not occur until after twenty-four or forty-eight hours. During the interval there may be no discharge whatever of blood, but simply ordinary diarrhoea.



With the onset of intussusception usually a tumor can be detected on palpation. To ascertain the presence of this is of the highest importance. It should be looked for, as I believe it is usually because of the lack of this custom that intussusception is overlooked. It should be the custom to examine with the hand the abdomen in all cases of diarrhoea. Under these circumstances the so-called "sausage-like tumor" may be generally found if sought for early and usually in the position of or neighborhood of the ilio-cæcal region, where, as you know, intussusception most frequently occurs. In dysentery, moreover, there is no tenesmus without some, even a very slight, discharge of mucus or blood; in intussusception the most intense paroxysms of straining and bearing down occur without any evacuation whatever. These paroxysms of tenesmus are most severe; there is no discharge of blood or mucus. The occurrence sooner or later of tympany, with tenderness of the abdomen, with cessation of fecal discharges, but with the occurrence of vomiting, followed in a short time by the rapid development of depression or collapse, leads one to surmise the presence not of a specific inflammation, but of a mechanical derangement of the intestinal canal.

Permit me to refer for a moment to a case which occurred recently, in which the symptoms just detailed were most marked. The infant, nine months old, was suddenly seized with a series of contortions and crying, the former not unlike those of a spasm, but when carefully observed it was readily seen that the movements were due to pain, and that the pain was in all probability in the abdominal region. It persisted, and at first was attended with diarrhoea. With its onset, which was very sudden, there was a slight discharge of blood. Fecal discharges then began. After the bowel was free of feces, small amounts of mucus and blood were discharged, both rapidly increasing in amount. On the third day a tumor was evident, but did not persist longer than twelve hours, increasing tympany having hid it from view. The intense paroxysms of pain with severe straining continued. All efforts were futile. Nothing was discharged, and each effort only aggravated the succeeding one. Local examination did not show the presence of any foreign body or any protruding intestine. My associate, however, thought the symptoms were sufficient to establish the diagnosis of dysentery, and hence urged the importance of delay before resorting to an abdominal section. Forced enemata and injections of air were used, but without success. On the sixth day the features became sunken, the extremities cold, there was some vomiting and great tympany, and yet no tenderness or evidence of peritonitis. Twenty-four hours later convulsions ensued, followed by death.

While, therefore, in childhood we are often put to the necessity of distinguishing between these grave affections, in adult life this is not often the case. There are, however, local causes for the development of symptoms similar to dysentery. Thus, for instance, hemorrhoids, the presence of a foreign body in the rectum, the pressure on the canal by enlarged prostate gland, or a displaced uterus may cause, and frequently, too, local symptoms closely allied



to dysentery. Similarly, too, the presence of impacted feces in the rectum will lead to dysenteric symptoms, and not only to local symptoms of dysentery, but, strange to say, if allowed to continue, the presence of impacted, irritating masses will cause by pressure a true ulcerative enteritis.

Time will forbid my detailing to you a case of this character ; suffice it to say that in the patient, a young woman, after confinement, and possibly pressure of the uterus on the rectum combined with the neglect to have an evacuation of the bowels, dysenteric symptoms ensued. The attending physician thought it was an attack of dysentery, and efforts to check the movements were used. They were checked ; the impaction became more and more marked ; the internal pressure on the mucous membrane and the accumulation of hardened lumps in different parts of the large bowel caused ulceration of that structure and gave rise to the appearance, on palpation and percussion, of large numbers of tumors in the abdominal cavity. The relief of the impaction and the evacuation of the bowel higher up gave relief at once to the dysenteric discharges, although for a period of many months blood and mucus were commonly seen in the thin fecal stools. Only a year afterward was the patient able to follow light occupation and partake of a most easily digested diet ; any indiscretion would be followed by evacuations of mucus and blood.

Inflammations of the rectum and colon of non-specific origin, as is readily seen, can be diagnosed by the examination of the discharges. If the amœbæ are characteristic of tropical or specific dysentery, they should not be found in cases of proctitis or colitis from other causes. You can therefore see the value of the detection of them in the stools. It was my good fortune to see one of the cases Prof. Osler had under his care, and on return to my service in the Philadelphia Hospital I began to look for amœbæ in the dysenteric cases. There were no cases in my ward, but in the ward of my colleague there was a case, in the stools of which I readily found the amœbæ.<sup>1</sup> Since then the stools of two patients in private practice showed their presence. The care that Dr. Lafleur insists upon is necessary to succeed in the examination. The stools must be passed in a bed-pan, previously warmed, and the examination made immediately after the evacuation. Small, grayish-yellow pus collections picked from the brownish fluid of the stool contained the most active and abundant amœbæ.

The presence or absence of the amœbæ in the stools may be of service in distinguishing true dysentery from proctitis due to local irritation from foreign body or the irritating presence of hemorrhoids or carcinoma. These local morbid processes must be thought of in the study of a case of suspected dysentery. As the possibility of the occurrence of intussusception in early life makes it important to consider its presence in a case with dysenteric symptoms, so in later life a common local affection of the rectum or the large intestine which causes dysenteric symptoms must be considered. It is true such symptoms usually extend over a long period of time, but enough cases occur to lead one to be cautious ; they may arise suddenly and simulate an acute process. In carcinoma of the rectum or the lower portion of the colon, bloody and mucous

<sup>1</sup> First case in a series since reported by Dr. Stengel.



discharges occur with tormina and tenesmus. While there is a discharge of what appears to be feces alone, and often the motion is formed, although compressed or ribbon-shaped, frequent desire to evacuate the bowels with straining, but without any result, is significant. So frequently cases of carcinoma have been thought to be dysentery, that it is important to impress upon you their occasional similarity. Indeed, twice in my own experience I have been asked to see cases of alleged dysentery which proved to be malignant disease of the bowel. Another fact to be borne in mind is that in cases where the course is protracted and in which you have not been led to make a local examination early in the case, you may, if the person is aged, be justified in fearing the presence of malignant disease.

It is not sufficient for therapeutic measure to make a diagnosis simply of dysentery. Indeed, symptoms of this affection occur secondary to general processes and yet so thoroughly mask this process, often on account of the intense local symptoms, that the primary affection may be overlooked. I refer to the onset of dysenteric symptoms in the course of any of the septic diseases. Thus in septicæmia, or in endocarditis of the ulcerative variety, often, too, in pneumonia, colitis is associated. Particularly in the former affections it may be the most marked local process. So, too, in the course of scurvy, dysentery may arise. If the circumstances were favorable for the development of scurvy, one would not be liable to be mistaken, but in rare cases of land scurvy, or in scurvy in subjects in whom one would scarcely think it possible to arise, the mistake can readily be made. Indeed, the most instructive lesson that ever occurred to me was of this nature. The patient was ill for some time with undoubted entero-colitis, the fever was not very marked, the general symptoms not grave save a sense of prostration, while the entero-colitis persisted without relief afforded by any form of treatment. Curiously, the patient, a physician, and myself discussed the condition of the gums, which we knew were tender and spongy, and yet the relation between the gums and the bowel trouble did not strike us. Our friend, Prof. Wood, saw this, however, and we readily concurred in his suggestions of the possibility of scurvy, in spite of the fact that this was hardly to be surmised from the surroundings and habits of the patient.

A knowledge of the morbid anatomy and pathological processes of dysentery suggests the line of treatment which empirically has been established as the best. That is one which involves local depletion of the inflamed parts, and the removal of the specific irritant, which is evidently some microbe, causing the inflammation. This is done, as is well known, by the use of purgatives. Salines are usually employed, and in adults are probably the best form of this medication that can be exhibited. In children, castor oil in small quantities, or the spiced syrup of rhubarb, is preferable. In the adult, a dose of Epsom salts every morning and evening, with an anodyne to quiet the pain, or the use of citrate of magnesia in repeated doses, until there is a copious fecal motion, will usually bring about a curative result in most instances. In children, a combination of castor oil with small doses of opium appears to afford the speediest relief, preferably a mixture of castor oil, so that fifteen drops



will be emulsified in a drachm mixture. For a child of 2 years this seems to be the most effective when combined with one or two drops of deodorized tincture of opium to each dose. It should be administered every two or three hours. The dose can be graduated according to the age. It will usually cause immediate relief. On account of the chills and chilliness followed by fever, as is the custom with a number of my colleagues in the vicinity in which I practise I have been accustomed to use quinine with a laxative. The following prescription has seemed to fulfill all indications, and in a short time give satisfactory relief:

R	Quininæ sulphat.,	gr. ij	
	Ext. opii,	gr. $\frac{1}{2}$ - $\frac{1}{4}$	
	Mass. hydrarg.,	gr. $\frac{1}{2}$	M.
	Ft. Pil. No. I.		

Sig.—One or two every two or three hours.

The systemic depression is relieved by the quinine; the opium relieves pain, as well as stimulates; the mercurial gently excites a natural movement of the bowels. In twenty-four or thirty-six hours the general symptoms subside, and the local tormina and tenesmus are relieved. Quinine, with smaller doses of opium, is then of service, and bismuth may be added to the compound.

While this treatment is most satisfactory, and usually results favorably, there are some cases which, in spite of local depletion, persist. They seem to be associated from the first with certain influences indicating the occurrence of profound depression, and hence the need of some line of treatment which is not depletory, and yet serves to remove irritative mucus and pus, and at the same time stimulate the system. Hence the indication for quinine. I believe that my friends who use the prescription will testify with me that it is the quickest way to get speedy relief with the least prostration of the patient. Ipecacuanha also seems to be of the greatest service; it has even been vaunted as a specific, and has undoubtedly a remarkable influence in controlling specific inflammation of the colon. How it acts we are thus far unable to determine. All observers agree that it has this power, and yet all agree that it is not necessary to give it in every case. A case somewhat like the following may indicate to you the variety of cases in which its use is necessary: The patient was a middle-aged woman, who had exerted herself unusually during ten hours of the day on which her illness began. After this exhaustion she was compelled to go a considerable distance from home, and to pass through a crowd which had collected at some exhibition. Her pocket was picked at this time, and she experienced a most decided shock when she found that the small savings of several days hard labor had been lost. She reached home, scarcely knowing how, and was immediately seized with a severe chill, followed by fever; at the same time diarrhœa set in. She did not improve during the night, and next day took saline cathartics, and then castor oil, without relief. I saw her on the third day, when she was much depressed, with weak pulse, cold extremities and pale face. She seemed anxious, and was troubled about the loss of her money. During the day she had two or three dysenteric discharges every hour. Ipecacuanha was administered this day, and for two days subsequently, accord-



ing to the directions of Woodhull, with the most prompt relief of the serious general symptoms and the intense local tormina and tenesmus. You know it is better to give thirty or forty, or even sixty, grains of the powder and repeat the drug in a smaller dose in twenty-four hours, again repeating the larger dose if no relief is obtained. To prevent the vomiting, which is liable to arise, the patient must assume a recumbent position, must have a mustard plaster upon the pit of the stomach prior to the administration of the drug, and half an hour before take fifteen to thirty drops of the deodorized tincture of opium. Ten grains of the ipecac may then be used at intervals of four hours, similar precautions of less degree being used to prevent vomiting. Frequently the patient to whom the ipecacuanha is administered receives all the medicine within forty-eight hours.

It is scarcely worth while to refer to the treatment of the general symptoms. The indications that arise usually require the use of stimulants and tonics and carefully selected diet, obedience to the command to rest in bed, not even having a motion outside of the bed. The bed-pan should be used. Quinine may, and often must, be administered either as suggested formerly, or in very large doses, as is customary in the South. If scurvy should be the exciting cause the treatment should be entirely different. In the case just mentioned we doubled the amount of astringents that had been used, and in addition put the patient on the diet which should be advised in this diathesis. It, therefore, is desirable to give lemon juice, and to allow, long before it would be attempted in other inflammations, the use of a mixed diet, and one of vegetables particularly.

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